B. Amendments to the Claims:

Please cancel the existing claims and add the following new claims:

WHAT IS CLAIMED IS:

16. Method for measuring an entity of a magnetic field using a Hall sensor, which is provided with at least one Hall plate which includes a group of two pairs ((Al, A2), (B1, B2)) of terminals (Al, A2, B1, B2) located at a distance from one another, an excitation signal being supplied from a source to one pair of terminals, and a detection signal, which forms a representation of the entity, being tapped off from the other pair of terminals by a processing circuit, wherein the source is a voltage source of which an impedance is negligible for use of the sensor, and the processing circuit has a negligible input impedance for tapping off the detection signal as a short-circuit current.

17. Method according to claim 16, wherein the measurement of the entity is carried out in cycles of in each case four sub-measurements, to provide four measured values for the entity, with the pairs of terminals of the plates being alternately connected to the voltage source and to the processing circuit, the polarity of the voltage source being reversed during two sub-measurements with respect to the other two sub-measurements.

18. Method according to claim 16, wherein the measurement of the entity is carried out in cycles of in each case four sub-measurements, to provide four measured values for the entity, with the pairs of terminals of the plates being alternately connected to the voltage source and to the processing circuit, the polarity of the voltage source being reversed during two sub-measurements with respect to the other two sub-measurements, the processing circuit amplifies the detection signal prior to processing of the detection signal.

19. Method according to claim 16, wherein the measurement of the entity is carried out in cycles of in each case four sub-measurements, to provide four measured values for the entity, with the-pairs of terminals of the plates being alternately connected to the voltage source and to the processing circuit, the polarity of the voltage source being reversed during two sub-measurements with respect to the other two sub-measurements, the processing of the four measured values comprises the reversing of the polarity of the measured values of the two sub-measurements for which the polarity of the voltage source was reversed with respect to the other two sub-measurements, and the measured values of the two other sub-measurements and the two measured values with reversed polarity are summed.

20. Method according to of claim 16, wherein the measurement of the entity is carried out in cycles of in each case four sub-measurements, to provide four measured values for the entity, with the pairs of terminals of the plates being alternately connected to the voltage source and to the processing circuit, the polarity of the voltage source being reversed during two sub-measurements with respect to the other two sub-measurements, Hall plates which are made from n-type silicon semiconductor material are used.

21. Method according to claim 20, wherein if the said semiconductor Hall plates are made from n-type silicon semiconductor material using a process which resulted in the substrate surface coinciding with the crystal plane of the silicon semiconductor material, plates are used whose orientation in the crystal plane is such that a straight connecting line between the terminals of each pair of terminals coincides with or is orthogonal with respect to the [010] or [001] crystal axes or equivalent crystal directions of the silicon semiconductor material.

22. Method according to of claim 16, wherein the measurement of the entity is carried out in cycles of in each case four sub-measurements, to provide four measured values for the entity, with the pairs of terminals of the plates being alternately connected to the voltage source

and to the processing circuit, the polarity of the voltage source being reversed during two sub-measurements with respect to the other two sub-measurements, four Hall plates are integrated in a common silicon substrate in such a manner that the group of terminals of each Hall plate, with respect to a perpendicular to a main plane of the plates, is rotated through 90, 180 and 270°, respectively, with respect to the other groups of terminals, and the same terminals of the different groups are connected to one another in accordance with the different orientation for adjacent plates.

23. Method according to claim 22, wherein the Hall plates are arranged in a square formation, with an orientation of their groups of terminals which is such that a direction in which one looks from one Hall plate towards an adjacent Hall plate is opposite to a direction in which the group of terminals of the one Hall plate is rotated through 90° with respect to the group of terminals of the other Hall plate.

24. Method according to of claim 22, wherein wiring to, from and between the Hall plates is arranged in such a manner that currents running from and to the voltage source generate magnetic fields which substantially cancel one another out in the main plane of the Hall plates.

25. Method according to claim 16, wherein Hall plates which comprise a layer of n-type silicon located between an underlying substrate of p-type silicon and a top layer of p-type silicon are used.

26. Method according to claim 16, wherein the measurement of the entity is carried out in cycles of in each case four sub-measurements, to provide four measured values for the entity, with the pairs of terminals of the plates being alternately connected to the voltage source and to the processing circuit, the polarity of the voltage source being reversed during two sub-measurements with respect to the other two sub-measurements, the processing circuit stores the measured values for every four successive sub-measurements, and for each sub-measurement the

four measured values obtained last are summed to give a processed measured value for the variable.

27. Apparatus for measuring an entity of a magnetic field using a Hall sensor, which is provided with at least one Hall plate which has a group of two pairs ((A1, A2), (B1, B2)) of terminals (A1, A2, B1, B2) located at a distance from one another, one pair of terminals being connected to a source for supplying an excitation signal to the one pair of terminals, and another pair of terminals being connected to a processing circuit for tapping off and processing a detection signal from the other pair of terminals, wherein the source is a voltage source of which an impedance is negligible for use of the sensor, the processing circuit has a negligible input impedance for tapping off the detection signal as a short-circuit current.

28. Apparatus according to claim 27, wherein switching means are arranged, which, in accordance with a method according to one of the preceding claims, alternately connect the pairs of terminals to the source and the processing circuit between the pairs of terminals and the source and the processing circuit.

29. Apparatus according to claim 27, wherein four Hall plates are provided in a square formation and integrated in a single substrate, the groups of terminals of the Hall plates being oriented in such a manner with respect to a perpendicular to a main plane of the plates that one group of terminals of a Hall plate is rotated through 900 with respect to a group of terminals of an adjacent Hall plate, in a direction which is opposite to the direction in which the other Hall plate follows the one Hall plate, and the same terminals are connected to one another in accordance with the different orientation for adjacent plates.

30. Apparatus according to claim 27, wherein a wiring is connected to the terminals of the Hall plates, the wiring having an arrangement which is such that currents running from and to the voltage source generate magnetic fields which substantially cancel one another out in the main

plane of the Hall plates.